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EXAMINER

NILAND, PATRICK DENNIS

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1714

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Paper No. 041304

Application Number: 09/890,028
Filing Date: July 24, 2001
Appellant(s): NAKATA, KAZUYUKI

Robert Stevenson
For Appellant

MAILED

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GROUP 1700

EXAMINER'S ANSWER

This is in response to the appeal brief filed 2/2/04.

(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is correct.

(4) *Status of Amendments After Final*

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) *Summary of Invention*

The summary of invention contained in the brief is deficient because the claims do not require shelf life of a year or more. Otherwise the summary of the invention is correct.

(6) *Issues*

The appellant's statement of the issues in the brief is correct.

(7) *Grouping of Claims*

Appellant's brief includes a statement that claims 1-12 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8) *Claims Appealed*

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

5319019	NOTHNAGEL	06-1994
GB 2269822	BEST	02-1994

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

A. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over GB 2269822 Best in view of US Pat. No.5319019 Nothnagel.

Best discloses the instantly claimed dispersion except does not disclose the instantly claimed excess of ammonia nor the instantly claimed melt flow rate. See the entire document. It would have been obvious to one of ordinary skill in the art at the time of the instant invention to use the instantly claimed melt flow rate because the polymer of Best would probably need to be within the instantly claimed broad melt flow rate range in order to form a film from a dispersion and to give the small particle size disclosed by Best. It would have been obvious to one of ordinary skill in the art at the time of the instant invention to use the instantly claimed excess of ammonia because Nothnagel shows such excess ammonia to give more stable polyacrylate dispersions for the reasons stated at column 10, line 62 to column 11, line 7 and this stability would have been expected in the dispersion of Best for reasons which the ordinary skilled artisan would understand based on the teachings of Nothnagel, particularly the fact that ammonia is volatile and its removal will lead to polymer which does not have enough salt groups to keep it stably dispersed. This is well understood in the art today. The appellant's arguments with regard to the comparative examples of Best are noted.

However, Best is cited not for its comparative examples but for its other teachings. Best is acknowledged to not teach the instantly claimed excess of ammonia. Nothnagel is cited for this teaching. The argument that Nothnagel does not disclose ethylene/acrylic copolymers is not seen as material. The ordinary skilled artisan understands the relationship of HLB (hydrophile/lipophile balance) to giving a dispersible polymer. This relationship holds regardless of the identity of the specific comonomers. It is noted that many of the monomers of Nothnagel are more hydrophobic than ethylene since they have such large quantities of hydrocarbon. The ordinary skilled artisan would thus understand that the above arguments related to Nothnagel also apply to ethylene acrylic copolymers. No evidence to the contrary is seen. The alternative phraseology "or" of the primary reference would clearly imply that where ammonium hydroxide, i.e. aqueous ammonia, is used the alkali metal compounds are not.

(11) *Response to Argument*

The appellant's questioning of whether or not Best may serve as a basis for a prima facie case of obviousness ignores the fact that the standing rejection is based on Best in view of Nothnagel. The section relied on at page 4 of Best includes complete neutralization, which encompasses the use of excess neutralizing agent though such an excess is not disclosed. The reference is not limited to its examples and the appellant's consideration of Best alone ingores the teachings of the prior art, particularly those cited in Nothnagel, which actually make up this obviousness rejection. Because Best has some alleged deficiency relative to the appellant's claims does not mean that Best may not serve as a basis for a prima facie showing of obviousness as argued by the

appellant. The fact that this is an obviousness rejection acknowledges that the primary reference is somehow deficient over the instant claims. Otherwise the rejection would be one of anticipation. The appellant's conclusion would preclude obviousness rejections, which is clearly erroneous. The examiner does not concede that the dispersions of Best are not stable. The appellant has not shown that the dispersions of Best are not stable particularly where fully neutralized salt groups are used, as taught by Best. The appellant only compares examples of Best in which less than stoichiometric amounts of ammonia are used. This is not commensurate in scope with the teachings of Best which clearly state that complete neutralization can be used. The ordinary skilled artisan, who clearly understands the concepts underlying HLB (hydrophile/lipophile balance), understands that more ionic groups relative to the amount of hydrophobes will give a more stable dispersion in a polar solvent such as water. This is basic to the art and clearly taught by Nothnagel, column 10, lines 43-68 and column 10, lines 1-7. There is no showing that the excess ammonia taught by Nothnagel would not have been expected to give stable and "uniform" dispersions within the scope of the instant claims.

The appellant questions the propriety of combining the teachings of Best and Nothnagel. Proper motivation to combine the teachings of these references is clearly present in the above rejection. The appellant argues that this relates to adding excess ammonia to acrylic polymer in organic solvent for a different purpose. It is true that Nothnagel uses organic solvent (column 10, line 49) but the acrylic polymer is subsequently dispersed in water. See column 10, lines 49-56. The instant claims do

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not exclude organic solvent as it is not shown to materially affect the basic and novel characteristics of the composition and is a common additive to aqueous dispersions. The appellant's argument regarding "a different purpose" is not correct as the purpose of the ammonia is clearly to form salt groups to stabilize the dispersion. See column 10, lines 43-44 and 62-68 and column 11, lines 1-7, which explicitly relates the amount of neutralization to stability of the aqueous dispersion. This is the same reason the salt groups are neutralized in Best, i.e. to give stability to the dispersion which also corresponds to "uniform" as used in the instant claims. Thus, the teachings of Nothnagel would readily lead the ordinary skilled artisan to use excess ammonia in the dispersions of Best to achieve the complete neutralization spoken of in Best and the added benefits spoken of in Nothnagel and the stability gain taught by Nothnagel would also have been expected to correspond to the uniformity of the instant claims. It is further noted that the teachings of column 10, lines 43-52 of Nothnagel in no way detract from the ordinary skilled artisan's clear understanding from column 10, lines 62-68 and column 11, lines 1-7 that excess ammonia would increase the stability of the dispersion of Best for the reasons clearly stated at column 10, lines 67-68 and column 11, lines 1-7 whether or not organic solvent is used since Best clearly neutralizes his polymer to allow it to disperse in water, as would have been readily understood by the ordinary skilled artisan at the time of the filing of the appellant's invention, and in fact teaches the complete neutralization can be used. Excess ammonia will give complete neutralization as no further neutralization can be obtained. Evaporation of ammonia will

give less than complete neutralization. Thus, excess ammonia will maintain complete neutralization as would be appreciated by the ordinary skilled artisan.

The appellant's argument that the polymer of Nothnagel is not the same as that of the instant claims nor of Best does not preclude combining the teachings of Best and Nothnagel. Both use ammonia to stably disperse polyacrylates with salt groups in water. The rationale for using excess ammonia in Nothnagel applies equally to the dispersion of Best because ammonia is volatile in either system and losing the neutralizing agent due to evaporation will mean less salt groups in both systems and decreased ability to disperse the polymers of each system as defined by the HLB system noted above. The ordinary skilled artisan understands that evaporation of ammonia leads to loss of salt groups, i.e. hydrophilic groups. Without enough hydrophilic groups, the hydrophobic polymer will not be compatible with water and will separate out. With enough salt groups, hydrophobic polymer can stably exist dispersed in the water. Best teaches the use of up to 25 % methacrylic acid at page 2, lines 20-23 and complete neutralization, as noted by the appellant. Thus, the amount of potential hydrophilic groups of the instant claims is encompassed by Best as is complete neutralization. To obtain complete neutralization one would have to use excess ammonia to overcome the equilibrium of the salt groups with the acid groups in water and to avoid evaporation of the ammonia as taught by Nothnagel.

The mode of dispersion of Nothnagel is immaterial to the reason it uses an excess of ammonia. The reason Nothnagel uses excess ammonia applies to the dispersions of Best regardless of the use of solvent to facilitate dispersing the polymer of Nothnagel for


the same reason that both Best and Nothnagel use ammonia to stably disperse their polymers. The appellant's arguments of page 10 of their appeal brief ignore the clear statement of column 10, lines 62-68 and column 11, lines 1-3 of Nothnagel. The appellant again refers to comparative examples showing the dispersions of Best to not be uniform or stable. However, the appellant's examples are not commensurate in scope with the instant claims and the cited prior art, which uses the instantly claimed range of methacrylic acid content up to 25%. More salt groups, e.g. 25 % methacrylic acid, are expected to increase stability and uniformity because the addition of salt groups is expected to allow the dispersion to approach being a solution, which is the most uniform and stable polymer dispersion possible. Furthermore, it is not clear if some ammonia evaporated in the comparative examples that are 100% neutralized as taught by Nothnagel and Nothnagel teaches that the instantly claimed amount of excess ammonia is expected to give better dispersion stability. Stability, as stated by the appellant means that the dispersed particles do not agglomerate and become larger and settle out of dispersion. This would clearly also be expected to give a more uniform dispersion where the dispersion is more stable. The results of the appellant's examples are therefore not unexpected. This also addresses the appellant's third issue.

For the above reasons, it is believed that the rejections should be sustained.

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Respectfully submitted,


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pn
April 13, 2004

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